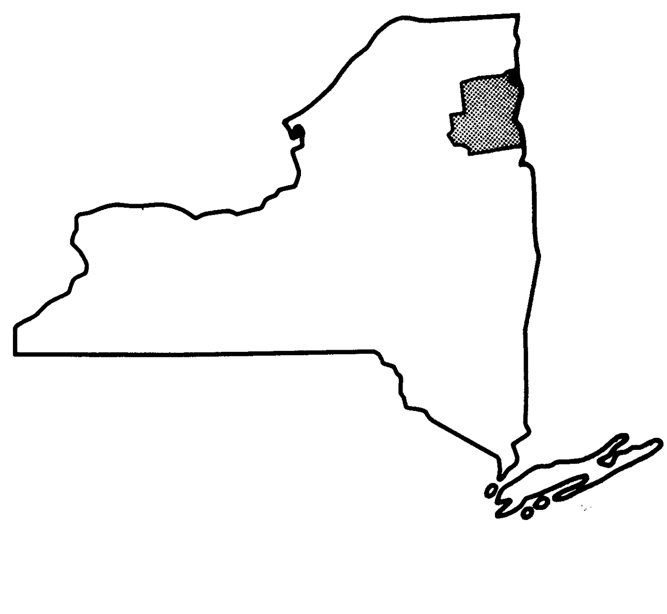
FLOOD INSURANCE STUDY

TOWN OF WILLSBORO, NEW YORK
ESSEX COUNTY



REVISED:
MAY 18, 1992

Federal Emergency Management Agency

COMMUNITY NUMBER - 360267

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision (LOMR) process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial FIS Effective Date: March 18, 1987

Revised FIS Date: May 18, 1992

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FLOOD INSURANCE STUDY
TOWN OF WILLSBORO, ESSEX COUNTY, NEW YORK

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study revises and updates a previous Flood Insurance Study/Flood Insurance Rate Map for the Town of Willsboro, Essex County, New York. This information will be used by the Town of Willsboro to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP). The information will also be used by local and regional planners to further promote sound land use and floodplain development.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analses for the original study were prepared by Camp Dresser and McKee, Environmental Engineers, for the Federal Emergency Management Agency (FEMA), under Contract No. H-3832. The hydrologic and hydraulic analyses for this revision were prepared by Kozma Associates Consulting Engineers, P.C., for FEMA, under Contract No. EMW-87-C-2449. This work was completed in December 1989.

1.3 Coordination

Streams requiring detailed study were identified by representatives of the New York State Department of Environmental Conservation in May 1986. The Town of Willsboro was notified of this in a letter dated October 11, 1990.

Results of the hydrologic analyses were coordinated with the New York State Department of Environmental Conservation (NYSDEC).

On April 17, 1991, a final Consultation Coordination Officer's (CCO) meeting, attended by representatives of the study contractor, FEMA, and the Town of Willsboro, was held to review the results of the study.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Town of Willsboro, Essex County, New York. The area of study is shown on the Vicinity Map (Figure 1).

In this revision, the Bouquet River was studied by detailed methods from a point approximately 0.5 miles downstream from N.Y.S. Route 22 to the corporate limit with the Town of Essex. Lake Champlain was studied by detailed methods in the original study for its entire shoreline within the community based on a lake level frequency analysis done in 1976. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and or proposed construction through 1994.

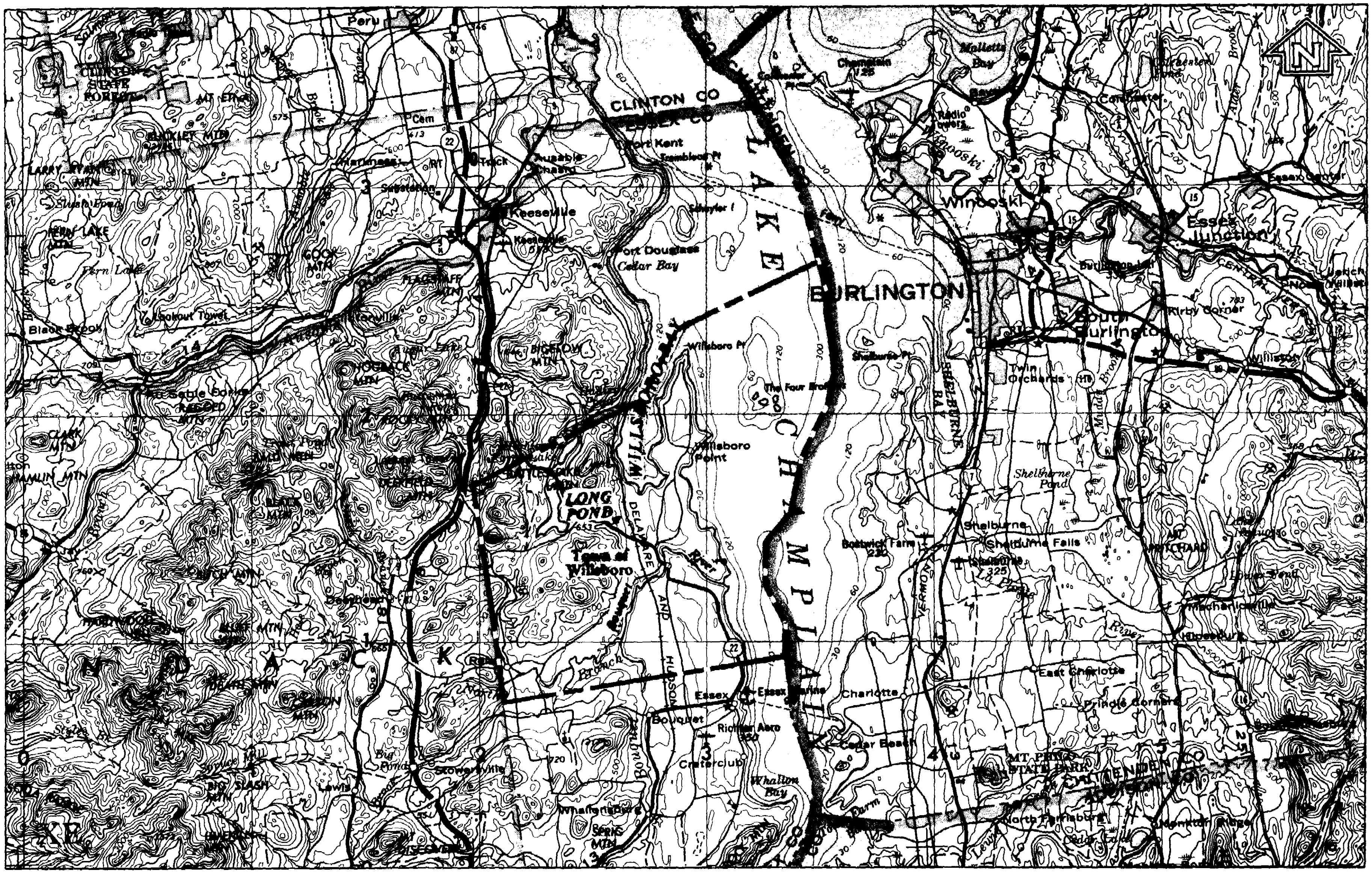
Long Pond was studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the Town of Willsboro.

2.2 Community Description

The Town of Willsboro, which has a total land area of 42.8 square miles, is located in northeastern Essex County, New York, approximately 23 miles south of the City of Plattsburgh. It is bordered by the Towns of Chesterfield to the north, Lewis to the west, Essex to the south, and Lake Champlain to the east.

Lake Champlain is a glacial lake with a north-south orientation, forming the border between New York and Vermont. Its total length is over 100 miles. At its widest part, between Plattsburgh and Burlington, the lake is approximately 22 miles wide. At the Canadian border, where the lake empties into the Richelieu River, its drainage area is 8,277 miles.

According to the 1980 census, the town had 1,759 residents. This represents an increase of 71 over the previous census figure of 1,688 in 1970, corresponding to a modest growth of four percent (Reference 1).



FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILLSBORO, NY

(ESSEX CO.)

APPROXIMATE SCALE

4 0 4 8 12 MILES

VICINITY MAP

FIGURE 1

The physical characteristics of the land are varied. The eastern portion of Willsboro consists of relatively flat coastal plains while the western region is mountainous. The Adirondack Mountains, with steep slopes, rise to an elevation of 1,482 feet above sea level within the corporate limits of the town.

The Town of Willsboro is entirely within the St. Lawrence River major drainage basin and the Lake Champlain watershed. All the rivers and brooks within the corporate limits drain into Lake Champlain (Reference 2).

Within its corporate limits are two other large lakes, Long Pond and Highland Forge Lake, in addition to extensive wetlands. The Bouquet River, recognized as one of the most important river resources in New York State by the State Wild Scenic and Recreational Rivers System, enters Willsboro through its southern border from the Town of Essex. The North Branch Bouquet River and Spruce Mill Brook, major tributaries of the Bouquet River, both enter the Town of Lewis situated to the southwest. They have been recognized as having statewide, regional and local significance, particularly for having one of the most outstanding salmon fisheries in New York State. Completed in 1982, the Willsboro Fish Ladder opened 14 miles of the Bouquet River, 10 miles of the North Branch Bouquet River, and several smaller tributaries to migrating salmon. The Bouquet River has also gained notoriety for its canoeing and scenic vistas.

In the early days Lake Champlain, Lake George and the Champlain Barge Canal were used for water-borne transportation to the Hudson River. Eventually this mode of transportation was superseded by the completion of the Delaware Hudson Railroad, which links New York City to Montreal. Although the railroad passes through the Town of Willsboro and provides passenger and freight service to the community, it does not have the same significance since the construction of Interstate 87. Known as Northway, Interstate 87 is one of the most important highways connecting Canada and the United States. It is located within a few miles of the town, with two interchanges north and south of Willsboro providing easy access to the town.

The mean minimum temperature in the area in January is 9 degrees Fahrenheit (^{o}F), and the mean maximum temperature in July is 83^{o}F. The mean annual precipitation is approximately 30 water-equivalent inches; the mean seasonal snowfall is approximately 60 inches (Reference 3).

2.3 Principal Flood Problems

Flooding can occur in the community during any season of the year but is most likely to occur in the late winter-early spring months when the melting snow may combine with intense rainfall to produce increased runoff.

Intense rainfall and ice jams cause flooding of riverside lands and cause erosion, resulting in the undermining of buildings and highways. Major flooding along the Bouquet River in 1973 resulted in four deaths and approximately $2.5 million in damages (Reference 4).

High-water levels on Lake Champlain result from a complex combination of climatic conditions that characterize the winter period throughout its drainage area. The conditions most conducive to flooding along the lake shore are freezing temperatures and a large quantity of snowfall throughout the winter, followed by a sudden period of warm and rainy weather without a refreeze. Such a combination has occurred in varying intensities in the past and has resulted in flood damages along the shore. To aggravate this flooding, the ice sheet on the lake's surface has been so thick at times that it did not readily melt with the onset of warm weather. The result has been that the large volume of water in the lake has lifted the ice, and strong winds have forced it ashore, crushing lake front structures in its path. It is estimated that ice can exert a force of up to 30,000 pounds per square inch, enough to pulverize a concrete wall (Reference 5).

On May 4, 1869, Lake Champlain was at its highest level in the last 150 years at 102.1 feet. In April 1903, the lake stage reached an elevation of 101.8 feet. In March 1936 and April 1976, it reached elevations of 101.61 and 101.64 feet, respectively.

High-lake stage accompanied by wind-driven waves aggravates the flooding problem and increases the risk of property damage. Local residents have reported encountering waves as high as 8 feet on Lake Champlain and have seen 6-foot waves break against cliffs along the shore.

Gage information from U.S. Geological Survey (USGS) gage No. 04294500 at Burlington, Vermont, and USGS gage No. 04295000 at Rouses Point, New York, was utilized for this study.

Flooding problems on the Bouquet River are largely a result of the physical characteristics of the watershed. The steep and narrow valleys draining the high mountain peaks to the west produce rapid and concentrated runoff into the river. This surge of water from mountain runoff fills and overflows the downstream riverbanks.

2.4 Flood Protection Measures

In 1978, the Town of Willsboro adopted a zoning ordinance which includes restriction on land use and construction in flood-prone areas to minimize property losses to residents (Reference 6).

While there are no known structural measures of flood protection, there is a growing effort to inform riverfront residents of the importance of minimizing erosion.

In March 1984, the Bouquet River Advisory Committee developed thirteen goals which would provide direction for development and attempt to solve river-related issues. These goals were intended to help preserve the valuable, agriculturally-rich soils along the river, to minimize siltation, and to improve the water quality, which is so vitally important to the delicate balance of aquatic life in the area.

3.0 ENGINEERING METHODS

For the flooding source studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency and peak elevation-frequency relationships for the flooding source studied in detail affecting the community.

For the Bouquet River, the peak discharge of the selected recurrence interval was determined using the procedures and regression equations outlined in "USGS Water Resources Investigation 79-83," for ungaged sites on gaged streams (Reference 7). For the northern region of New York State, the following equation was used:

$$Q = K(DA)^{x}(St+10)^{-y}(P-20)^{z}$$

where Q is the stream discharge; DA is the drainage area; St is the percentage of total drainage area shown as lakes, ponds and swamps; Pis the mean annual precipitation; and K, x, y and z are functions of the frequency. The value used for (K) was 864, for (x) 0.759, for (y) 1.27, and for (z) 0.61 for the 100-year flood discharge.

The calculated peak discharge as calculated by the regression equation for the USGS Gaging Station(No. 04276500) at Willsboro was used to adjust the peak discharge calculated by the regression equation at the ungaged site in accordance with the equation:

$$Q_w = Q_s[(K_g-1)((2A_g-A_s)/A_g)+1]$$

where Q_w is the weighted discharge at the ungaged site, Q_s is the discharge calculated by the regression equation for the ungaged site, A_s and A_g are the drainage areas at the site and the gage respectively, whereas K_g is the ratio of the weighted peak discharge to the peak discharge calculated by the regression equation at the gage.

The hydrologic information for Lake Champlain was taken from the Flood Insurance Study for the Town of Plattsburgh, the analysis for which was completed in 1976 (Reference 8). The USGS measures lake stages at two gaging stations on the northern end of Lake Champlain: No. 04294500 at Burlington, Vermont; and No. 04295000 at Rouses Point, New York. The data from the Rouses Point gage were used for this analysis because its on the western shore of Lake Champlain, because its period of record (1871 to present) is longer than that of the Burlington gage, and because examination of the records of these gages shows that the lake stages at both locations are very similar.

A summary of the drainage area-peak discharge relationships for the the Bouquet River is shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGE (cfs) 100-YEAR
BOUQUET RIVER		
Downstream limit of detailed study	275.5	11,830
At the confluence with North Branch Bouquet River	173.2	9,350

Graphical frequency analysis was chosen as the method most likely to determine lake stages of the selected recurrence intervals with a reasonable degree of accuracy. The results of this analysis were plotted on an arithmetic-probability graph (rather than a logarithmic-probability graph), which allows data points to vary over a wider range. This flexibility would help to describe a stage-frequency curve more accurately and would reduce the human error introduced in fitting a curve through the plotted points. It was decided not to employ the log-Pearson Type III frequency analysis because the range of logarithms of the lake stage data is too narrow to yield reliable results.

Three graphical frequency analyses were applied to the data measured at the Rouses Point gage from 1871 to 1976. They were the Weibull and Hazen Formulas, and the Beard Method (References 9 and 10). The stages for Lake Champlain presented in this report were obtained from the stage-frequency curve produced by the Beard Method because this curve appears to be an average of the curves produced by the other two formulas.

A summary of peak elevation-frequency relationships for Lake Champlain are given in Table 2, "Summary of Stillwater Elevations."

TABLE 2 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
LAKE CHAMPLAIN				
At Rouses Point, New York	101.01	101.76	101.97	102.32

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence interval.

Cross section data for the backwater analyses were obtained from 7-1/2 min. USGS quadrangle maps of scale 1:24,000 were enlarged to 1:4,800 (Reference 11). The below-water sections were obtained by field measurements. All bridges, dams and culverts were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the Flood Insurance Rate Map (Exhibit 2).

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgement and based on field observations of the streams and floodplain areas. The channel "n" value for the Bouquet River were in the range of 0.020-0.040, whereas the overbank "n" value was 0.080.

Water-surface elevations of floods of the selected recurrence interval were computed through the use of the COE HEC-2 step-backwater computer program (Reference 12). This computer model was calibrated using historic floodwater profiles. The starting water-surface elevation was calculated using the slope-area method. A flood profile was drawn showing computed water-surface elevations for a flood of the selected recurrence interval.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profile are thus considered valid only if hydraulic struuctures remain unobstructed, operate properly, and do not fail.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2 percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the flooding source studied in detail, the 100- and 500-year floodplain boundaries have been delineated using topographic maps at a scale of 1:24,000 with a contour interval of 10 feet (Reference 13).

For the flooding sources studied by approximate methods, the 100-year floodplain boundary has been delineated using the effective Flood Insurance Rate Map for the Town of Willsboro (Reference 14).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0

foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 3). The computed floodways are shown on the Flood Insurance Rate Map (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 3 for certain downstream cross sections of the Bouquet River are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE
Bouquet River								
A	900	368	4,168	2.8	102.0	100.1[2]	101.1[2]	1.0
B	8,350	214	2,695	4.4	103.0	103.0	103.7	0.7
C	10,250	149	2,099	5.6	106.6	106.6	107.3	0.7
D	11,550	208	1,396	8.5	109.0	109.0	109.7	0.7
E	13,100	204	2,966	4.0	153.4	153.4	154.1	0.7
F	14,350	169	1,860	6.4	156.4	156.4	156.8	0.4
G	17,250	122	1,237	9.6	166.2	166.2	166.2	0.0
H	19,850	180	1,521	7.8	173.7	173.7	173.8	0.1
I	23,170	130	1,542	7.7	179.3	179.3	179.4	0.1
J	26,930	175	2,667	4.4	184.1	184.1	184.6	0.5
K	30,320	110	1,253	7.5	188.7	188.7	189.5	0.8
L	33,450	200	2,097	4.5	193.0	193.0	193.4	0.4
M	36,570	175	2,148	4.4	195.3	195.3	195.7	0.4

[1]Feet above confluence with Lake Champlain
[2]Elevation computed without consideration of backwater effects from Lake Champlain

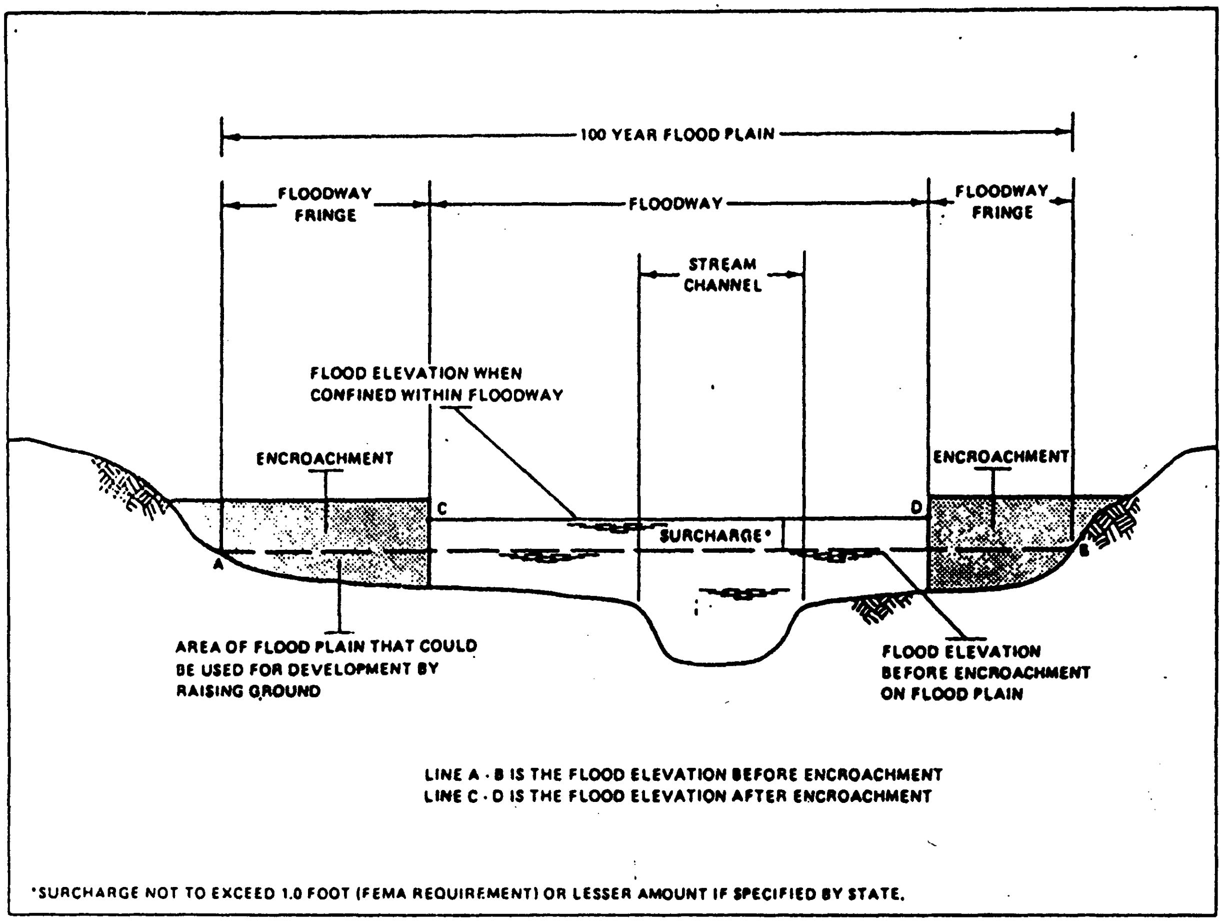
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILLSBORO, NY
(ESSEX CO.)

FLOODWAY DATA

BOUQUET RIVER

TABLE 3



FLOODWAY SCHEMATIC
Figure 2

elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year flood plain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map (FIRM) is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 OTHER STUDIES

Flood Insurance Studies have been prepared for the Towns of Lewis, Chesterfield, and Essex (References 15, 16, and 17).

In 1937, the International Joint Commission of the United States and Canada recommended the construction of a dam and levees at Fryers Island in the Richelieu River upstream of St. Jean, Quebec, to control perennial flooding experienced along the river in the spring. The dam was built but never put into operation because the levees were not built; therefore, flooding has continued. Increased development in the floodplain of the river, which consists of excellent soil for agriculture, has resulted in increased damages during spring floods. The situation is so severe that the Commission is again seeking to determine the best solution to the problem. Although the Commission has published a maximum 100-year lake stage of 101.42 feet, more recent developments have caused it to reconsider this analysis (Reference 18). They have found that factors only now becoming evident should be taken into account. One of these is the incongruity of higher lake levels over the past decade without the attendant increase in discharge in the Richelieu River that would be expected. In fact, an increase in weed growth has been noted in the river, which would indicate a decrease in discharge. The Commission is currently studying the environmental impacts of control measures and restudying the hydrology and hydraulics of the lake and river.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 26 Federal Plaza, Room 1351, New York, New York 10278.

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FLOOD PROFILES

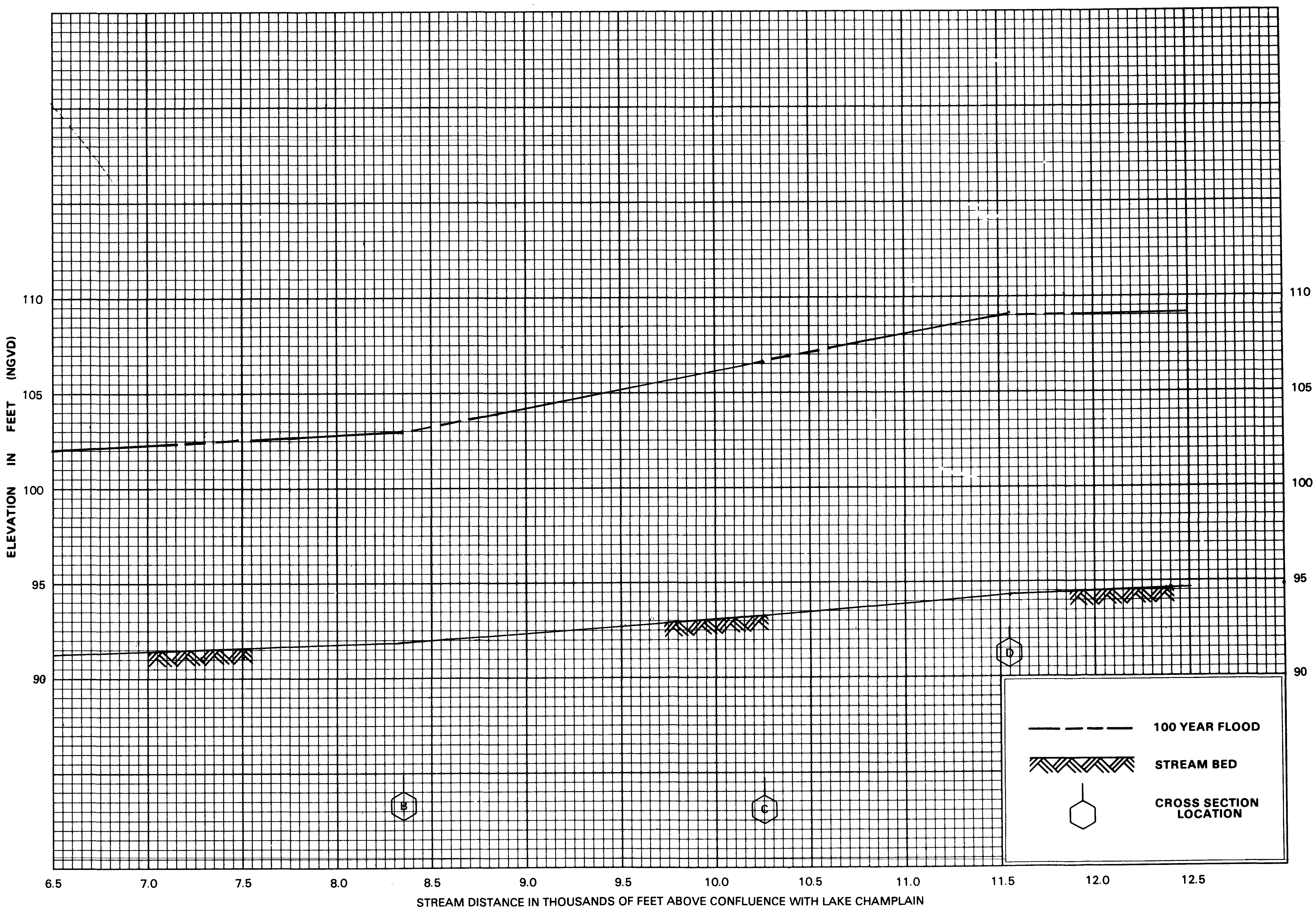
BOUQUET RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILLSBORO, NY

(ESSEX CO.)

01P



FLOOD PROFILES

BOUQUET RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

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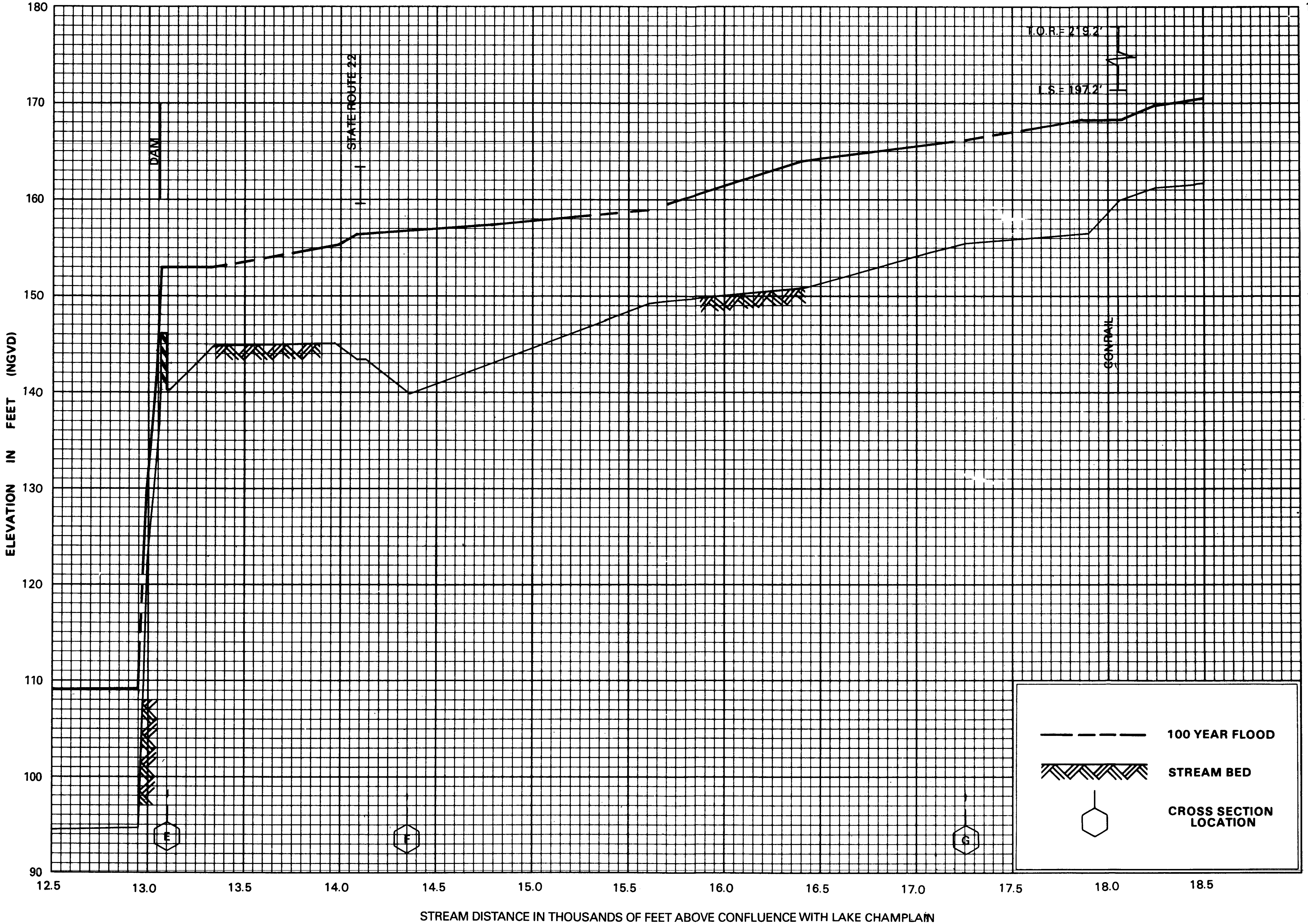


FLOOD PROFILES

BOUQUET RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILLSBORO, NY (ESSEX CO.)

03P

FLOOD PROFILES

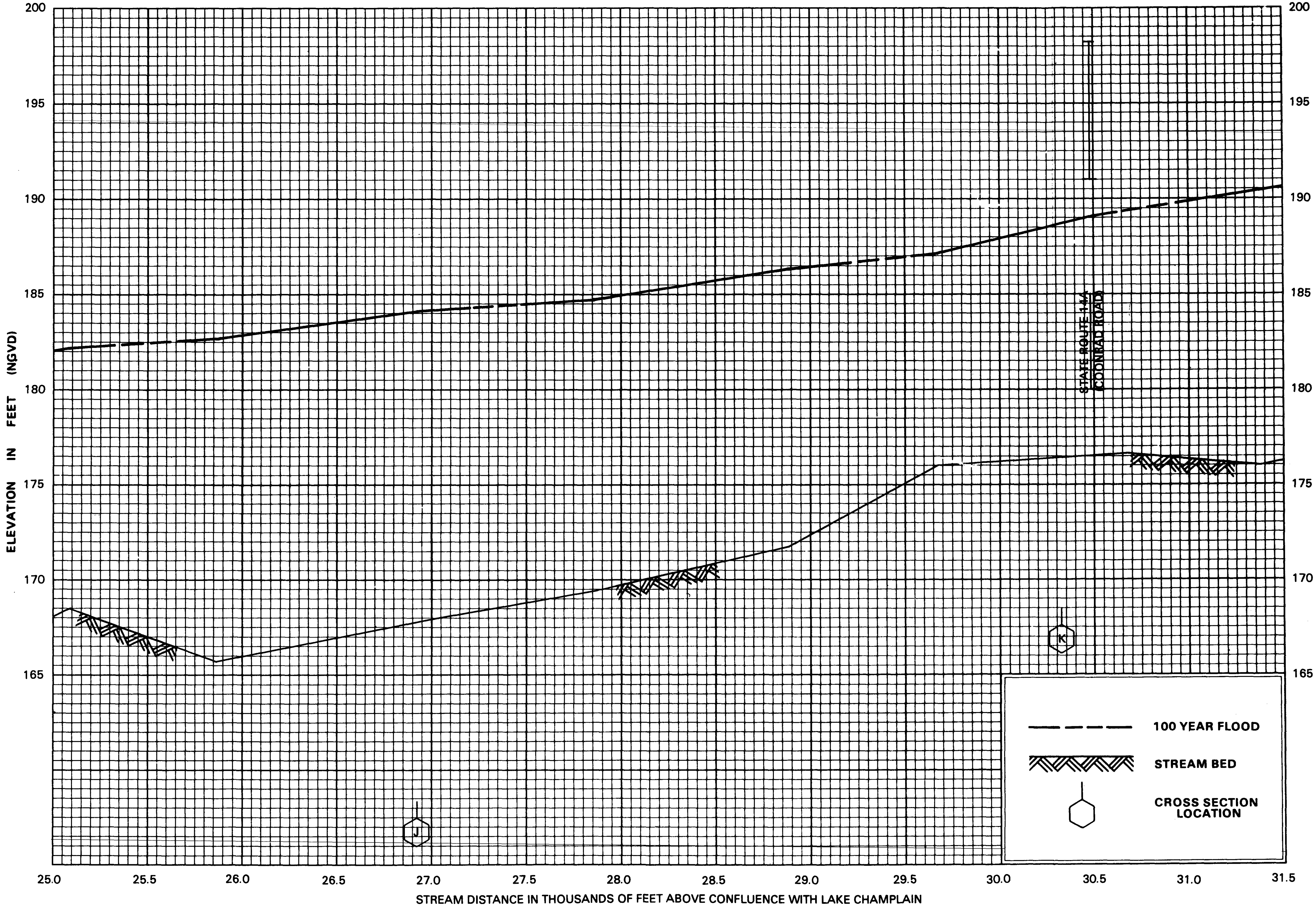
BOUQUET RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILLSBORO, NY

(ESSEX CO.)

04P



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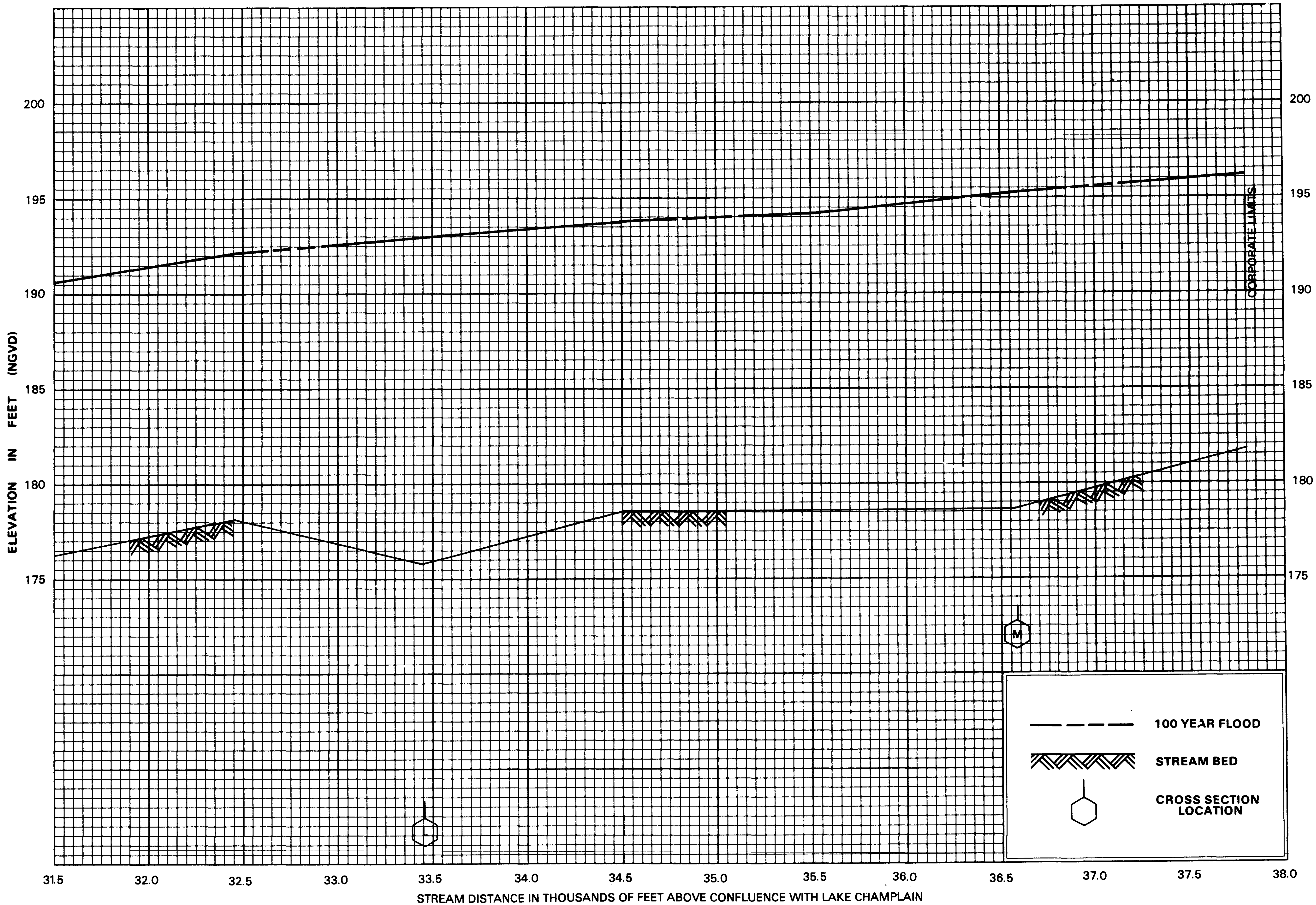
05P



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06P